

REMARKS

This Voluntary Amendment is submitted to amend claims 1, 3, 8, 13, 14, 21, and 22 to ensure clarity and to provide proper antecedent basis.

In the Office Action, the Examiner objected to the specification and claim 20 due to indicated informalities and rejected claims 1, 2, 7-14, and 20-22 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner also rejected claims 8, 16, and 17 under 35 U.S.C. §102(e) as being anticipated by Liu et al. (United States Patent Number 6,744,727), and rejected claims 1, 3-5, and 21-22 under 35 U.S.C. §102(e) as being anticipated by Chaudhuri (United States Patent Number 6,324,162). The Examiner indicated that claims 6, 15, 18, and 19 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Formal Objections

The specification and claim 20 were objected to due to indicated informalities. In particular, the Examiner asserts that the phrase “the steps of the steps of selecting” in claim 20 should be corrected as “the steps of selecting...” The Examiner also asserts that the web site address <http://www.dataconnection.com> on page 11, line 4, should be removed.

Claim 20 and the specification (page 11, line 4) have been amended in accordance with the Examiner’s suggestions.

Section 112 Rejections

Claims 1, 2, 7-14, and 20-22 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 8, the Examiner asserts that it is not clear what is meant by “a value of a function.” The Examiner asks if “a predetermined value” on line 12 referred to “at least one predetermined value” on line 4?

Applicants note that functions, objective functions, and values of functions, are terms that are well understood by a person of ordinary skill in the art. The “predetermined value” on line 12 may be, but is not required to be, the “at least one predetermined value” on line 4; this is a design choice, as would be apparent to a person of ordinary skill in the art. Please
 5 note that the limitation “a value of a function” has been amended to recite “a value of an *objective function*.”

Regarding claims 1, 21, and 22, the Examiner asserts that it is not clear what is meant by “adjusting the minimum total cost through an exponential function based on an amount of flows through links.” The Examiner asks how the “exponential function” is related to “the
 10 minimum total cost?” The Examiner asks what is meant by “an objective value” in claims 1 and 7, and asserts that, if the “objective value” means the cost of flow, then it has to be clearly written.

In light of the present specification (see, page 8-13 and 15-26), a person of ordinary skill in the art would understand the meaning of the limitation “adjusting the minimum
 15 total cost through an exponential function based on an amount of flows through links,” and would understand the relationship of the “exponential function” and “the minimum total cost.” Applicants note that the “objective” value is the target value for the minimization. Please note that the limitation “minimum total cost” has been amended to recite “*link costs*.”

Regarding claim 2, the Examiner asks what is meant by “a function that
 20 represents a marginal cost of a link?”

Applicants note that the disclosure teaches the meaning of a function that represents a marginal cost of a link on page 18, line 13, to page 19, line 3.

Regarding claim 9, the Examiner asks what is meant by “updating until an approximate solution to the network routing is within a predetermined error?”

As disclosed in the present specification on page 8, lines 13-15, “aspects of the
 25 present invention solve this problem by providing techniques that *quickly converge to a network routing solution that is within a predetermined error from an optimal network routing solution*.”

(Emphasis added.) In light of the present specification, a person of ordinary skill in the art would understand the meaning of the limitation “updating until an approximate solution to the network routing is within a predetermined error.”

5 Regarding claim 10, the Examiner asks what is meant by “a dual objective function?”

Applicants note that the disclosure provides an in-depth teaching of dual objective functions throughout the Detailed Description and, in particular, on page 19, line 4, to page 25, line 23. In light of the present specification, a person of ordinary skill in the art would understand the meaning of the limitation “a dual objective function.”

10 Regarding claim 11, the Examiner asks what is meant by “the dual objective function is part of linear program designed to maximize a first variable subject to a first plurality of conditions?”

Dual objective functions are discussed in detail on pages 18-25 of the originally filed specification. In light of the present specification, a person of ordinary skill in the art would understand the meaning of the limitation “the dual objective function is part of linear program designed to maximize a first variable subject to a first plurality of conditions.”

15 Regarding claim 12, the Examiner asks what is meant by “an objective function as part of second linear program...”

Objective functions meeting the cited limitations are discussed in detail on pages 20 18-25 of the originally filed specification. In light of the present specification, a person of ordinary skill in the art would understand the meaning of the limitation “an objective function as part of second linear program...”

Regarding claims 13 and 14, the Examiner asks how is an exponential function made or related to the cost updating?

25 Exponential functions and cost updating are discussed in detail on pages 8-13 and 15-26 of the originally filed specification. In light of the present specification, a person of ordinary skill in the art would understand how an exponential function is made or related to the

cost updating.

Regarding claim 20, the Examiner asks what is meant by “a value of a function” and asks if this referred to “a value of a function” in claim 8.

5 Functions are discussed throughout the originally filed specification and are well understood to a person of ordinary skill in the art. In light of the present specification, a person of ordinary skill in the art would understand the meaning of the limitation “a value of a function,” and its relation to the “value of an *objective* function” in claim 8.

Independent Claims 1, 8, 21 and 22

10 Independent claim 8 was rejected under 35 U.S.C. §102(e) as being anticipated by Liu et al., and claims 1 and 21-22 were rejected under 35 U.S.C. §102(e) as being anticipated by Chaudhuri. Regarding claim 1, the Examiner asserts that Chaudhuri teaches adjusting the total minimum cost for each of a number of potential failures; iterating the (steps of) routing, adjusting, and performing until an objective value is minimized, whereby flow for each of the links in the network is determined (col. 5, lines 30-40).

15 Independent claims 1, 21, and 22 have been amended to require ***adjusting link costs using an exponential function based on an amount of flow*** through links over which each demand is routed and ***based on said at least one primary path and said secondary path***. Independent claim 8 has been amended to require ***updating costs for links*** over which the demand is routed, ***wherein said updating is based on said primary flows and said secondary***
 20 ***flows***. Applicants could find ***no*** disclosure or suggestion in Chaudhuri of adjusting link costs using an ***exponential function based on an amount of flow*** through links over which each demand is routed and ***based on said at least one primary path and said secondary path***, and could find ***no*** disclosure or suggestion in Liu of ***updating costs for links*** over which the demand is routed, ***wherein said updating is based on said primary flows and said secondary flows***.
 25 Support for these amendments can be found on pages 4-11, 15-21, and 26-29 of the originally filed specification.

Thus, Liu et al. and Chaudhuri, alone or in combination, do not disclose or suggest adjusting link costs using an exponential function based on an amount of flow through links over which each demand is routed and based on said at least one primary path and said secondary path, as required by independent claims 1, 21, and 22, as amended, and do not
5 disclose or suggest updating costs for links over which the demand is routed, wherein said updating is based on said primary flows and said secondary flows, as required by independent claim 8, as amended.

Dependent Claims 2-7 and 9-20

Dependent claims 16 and 17 were rejected under 35 U.S.C. §102(e) as being
10 anticipated by Liu et al., and claims 3-5 were rejected under 35 U.S.C. §102(e) as being anticipated by Chaudhuri.

Claims 2-7 and 9-20 are dependent on claims 1 and 8, respectively, and are therefore patentably distinguished over Liu et al. and Chaudhuri (alone or in any combination) because of their dependency from amended independent claims 1 and 8 for the reasons set forth
15 above, as well as other elements these claims add in combination to their base claim. The Examiner has already indicated that claims 6, 15, 18, and 19 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

All of the pending claims following entry of the amendments, i.e., claims 1-22, are in condition for allowance and such favorable action is earnestly solicited.

20 If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Kevin M. Mason".

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